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PCT/KR2005/000914

# PATENT COOPERATION TREATY

# PCT



## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

| Applicant's or agent's file reference opsl20050003 | FOR FURTHER ACTION | See Form PCT/IPEA/416 |
|---|---|---|
| International application No. **PCT/KR2005/000914** | International filing date *(day/month/year)* **29 MARCH 2005 (29.03.2005)** | Priority date *(day/month/year)* 29 MARCH 2004 (29.03.2004) |

International Patent Classification (IPC) or national classification and IPC

***H01B 1/04(2006.01)i***

Applicant

**CENTECH CO., LTD. et al**

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ (sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

| Date of submission of the demamd | Date of completion of this report |
|---|---|
| **06 OCTOBER 2005 (06.10.2005)** | 11 JULY 2006 (11.07.2006) |
| Name and mailing address of the IPEA/KR<br>Korean Intellectual Property Office<br>920 Dunsan-dong, Seo-gu, Daejeon 302-701,<br>Republic of Korea<br>Facsimile No. 82-42-472-7140 | Authorized officer<br>KANG, SANG YOON<br>Telephone No. 82-42-481-8153 |

Form PCT/IPEA/409 (cover sheet) (April 2005)

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.
PCT/KR2005/000914

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

   ☐ international search (under Rules 12.3 and 23.1(b))
   ☐ publication of the international application (under Rule 12.4)
   ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this reort as "originally filed" and are not annexed to this report)*:

   ☐ the international application as originally filed/furnished

   ☒ the description:
   pages 1-11 as originally filed/furnished
   pages* _____ received by this Authority on _____
   pages* _____ received by this Authority on _____

   ☒ the claims:
   pages _____ as originally filed/furnished
   pages* 12-14 as amended (together with any statment) under Article 19
   pages* _____ received by this Authority on _____
   pages* _____ received by this Authority on _____

   ☒ the drawings:
   pages 1/3-3/3 as originally filed/furnished
   pages* _____ received by this Authority on _____
   pages* _____ received by this Authority on _____

   ☐ the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☒ The amendments have resulted in the cancellation of:

   ☐ the description, pages _____
   ☒ the claims, Nos. 1-21
   ☐ the drawings, sheets _____
   ☐ the sequence listing *(specify)* : _____
   ☐ any table(s) related to sequence listing *(specify)* : _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

   ☐ the description, pages _____
   ☐ the claims, Nos. _____
   ☐ the drawings, sheets _____
   ☐ the sequence listing *(specify)*: _____
   ☐ any table(s) related to sequence listing *(specify)* : _____

** If item 4 applies, some or all of those sheets may be marked "superseded."*

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.
PCT/KR2005/000914

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

| | | | |
|---|---|---|---|
| Novelty (N) | Claims | 22-31 | YES |
| | Claims | None | NO |
| Inventive step (IS) | Claims | 22-31 | YES |
| | Claims | None | NO |
| Industrial applicability (IA) | Claims | 22-31 | YES |
| | Claims | None | NO |

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:
D1 JP 04-011658
D2 JP 06-306289
D3 JP 04-304266
D4 US 2003/0116757 A1

The present invention(henceforth PI) is the conductive composition for carbon flexible heating structure and its manufacturing method. D1 describes the conductive silicon rubber composition incorporating carbon black. It has an improved cure rate, and gives a cured article with an increased crosslinking density by a specific furnace black as the carbon black. D2 relates to a silicone rubber composition excellent in processability and a high conductivity. D3 is directed to a variable-resistance rubber which can exhibit very excellent stability in the property of varying its electrical resistance according to the magnitude of the given deformation. D4 discloses a resin composition comprising a polyamide, a polyphenylene ether, an impact modifier, and a carbon type filler for an electrically conductive use, the filler residing in a phase of the polyphenylene ether.

1. Novelty and inventive step

None of the cited reference discloses the technical features of the carbon flexible heating structure reinforced by filling the conductive composition with short staples, e.g. glass fiber, carbon fiber and graphite fiber, or a fabric made of a woof and a wrap, nevertheless each of the cited documents(D1-D4) includes a furnace black with an iodine adsorption of 50mg/g or lower and a DBP absorption of 200ml/100g or higher as the carbon black and silicon rubber in D1; conductive silicone rubber composition compounded with carbon black in D2; a rubber obtained by adding 5.0 pts.wt. crosslinking agent C-3,to a conductive silicone rubber containing carbon black in D3; a polyamide, a polyphenylene ether, an impact modifier, and a carbon type filler in D4.

PI is distinguishable, in comparison with others(D1-D4), in the respect of filler such as short staples or a fabric described in claim 22-31, as well as wouldn't be obvious to the person skilled in the art to apply these features.
Therefore, the subject matter of claim 22-31 in PI have not only the novelty required in PCT Article 33(2) but also the inventive step regulated in PCT Article 33(3).
(to be continued on supplemental box)

**Supplemental Box**

**In case the space in any of the preceding boxes is not sufficient.**
Continuation of:

3. Industrial Applicability
The conductive composition for carbon flexible heating structure and its manufacturing method is industrially applicable and fulfills the requirement of industrial applicability(Article 33(4) PCT).